

NOTES AND COMMENTS

PREDATION OF *PROSIMULIUM MIXTUM/FUSCUM* (DIPTERA: SIMULIIDAE) COPULATING PAIRS BY *FORMICA* ANTS (HYMENOPTERA: FORMICIDAE)

A comprehensive description of black fly predators, both vertebrate and invertebrate, was given by Davies (Davies, D. M. 1981. Pages 139-158 in: M. Laird (ed.), *Blackflies*. Academic Press, New York). While most predation of black flies by Hymenoptera occurs by sphecid and vespidae wasps, five species of formicids have been observed preying upon black flies. Peterson (Peterson, B. V. 1960. *Can. Entomol.* 92:266-274) lists *Formica fusca* L., *F. obscuripes* Forel and *Myrmica brevinodes* Emery. Peterson and Davies (Peterson, B. V. and D. M. Davies. 1960. *Can. J. Zool.* 38:9-18) list *Lasius neoniger* Emery and *Myrmica emeryana* Forel. Of these only *L. neoniger* and *M. emeryana* were observed preying upon adult black flies.

On 5 May 1982, I observed large numbers of *Formica subnuda* Emery preying on newly emerged *Prosimulium* males that were unwilling or unable to fly when disturbed (air temp. = 18°C). The newly emerged males were presumably drying their wings on the rocks and vegetation adjacent to the Saranac River, Franklin Co., New York. On 12 and 13 May I observed predation of mating pairs of *Prosimulium mixtum/fuscum* by *Formica podzolica* Fraenkcoeur at a site 0.8 km upstream from the initial site. While approaching this particular site, I had located a large swarm (estimated at 60 m × 8 m × 10 m high) of male *Prosimulium* black flies (at 3:00 p.m., ambient temperature = 24°C, RH = 37%) swarming in the leeward (3 km/hr W) shaded sides of 2 20-m hemlocks (*Tsuga canadensis*) and 1 25 m quaking aspen (*Populus tremuloides*) whose leaves had opened about 30-50 percent. *Prosimulium mixtum/fuscum* adults were dropping onto the road surface *in copula* and remained attached for 0-5.75 min. Quite often the larger female dragged the copulating male behind her as she walked along the sandy road. A marauding ant randomly traversed the road until it crossed the trail of a mating pair or came within 3-4 cm of an immobile pair. The ant then turned abruptly in the same direction that the mating pair had travelled, increased its pace, followed the same path the flies had taken and, within 3-4 seconds of locating the pair, immobilized one or both of the flies. On four separate occasions other ants that had been 20 cm or more from a copulating pair when it crossed the flies' trail responded similarly. Shorter hunting trails were more common.

The *F. subnuda* that I observed on 5 May were attacking only the male flies since the females had not yet emerged. The *F. podzolica* that were observed on 12 and 13 May showed no apparent preference for the male or female black fly. A few ants were observed dragging both male and female carcasses that were still *in copula*. More frequently, an ant was successful in killing only one fly. The other fly would either remain wounded and separate immobilized from the mate or fly off unscathed.

Once an ant obtained its victim, it quickly turned back toward the colony. With the captured fly (flies) supported by the ant's mandibles, the ant completely ignored the trail of other mating pairs and other flies. On two occasions, ants with flies clasped in their mandibles walked directly over mating flies, which having been disturbed, separated and flew off. The *F. podzolica* colony (ca. 40 cm diam) was in a loose sand area about 1.5 m off the vehicular access zone on the south side of the road. On 13 May, ants from within the colony were also observed to be discarding *Prosimulium* carcasses from the colony interior to the area just outside (3–4 cm) the access holes. Since adult flies had been emerging since 3 May, the duration of time within the colony for these discarded *Prosimulium* is uncertain.

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THE FIRST OCCURRENCE OF *CATORHINTHA MENDICA* STÅL
IN NEW ENGLAND (HEMIPTERA: COREIDAE)

The spread of the coreid bug *Catorhintha mendica* Stål from the Great Plains eastward is, as noted by Hoebeke and Wheeler (1982) one of the few well documented cases of such a range extension known in the Hemiptera.

On August 7, 1982 I collected a series of eight adults of this species from a small patch of the host plant, *Mirabilis nyctaginea* (Michx.) MacMill.